

**ATTACHMENT B**

Marked Version of the Amended Claim Pursuant to 37 C.F.R. 1.121(c)

55. (amended) A bicycle crank set, comprising:

- a. a first tubular member having an exterior and interior surface;
- b. a second tubular member having an exterior and interior surface;
- c. a spider connected to the second tubular member; and
- d. a coupling comprising an outer sleeve and an inner sleeve,  
securing the first tubular member to the second tubular member,  
wherein said outer sleeve extends on said exterior of said first and  
second tubular members and said inner sleeve extends  
substantially parallel to said outer sleeve on said interior surface of  
said first and second tubular members;

wherein the first and the second tubular members each include:

- e. a tapered crank arm; and
- f. a portion of a crank axle with the crank arm and the portion of the  
crank axle being a continuous, monolithic thin-wall tubular structure.

ATTACHMENT C

55. (amended) A bicycle crank set, comprising:

- a. a first tubular member having an exterior and interior surface;
- b. a second tubular member having an exterior and interior surface;
- c. a spider connected to the second tubular member; and
- d. a coupling comprising an outer sleeve and an inner sleeve, securing the first tubular member to the second tubular member, wherein said outer sleeve extends on said exterior of said first and second tubular members and said inner sleeve extends substantially parallel to said outer sleeve on said interior surface of said first and second tubular members;

wherein the first and the second tubular members each include:

- e. a tapered crank arm; and
- f. a portion of a crank axle with the crank arm and the portion of the crank axle being a continuous, monolithic thin-wall tubular structure.

56. The crank set of claim 55, wherein the portion of the crank axle is one-half axle length of the crank set.

57. The crank set of claim 55, wherein the tapered crank arm has an elliptical cross-section distributing stresses uniformly and equally over the length of the crank arm.

58. The crank set of claim 57, wherein the first and second tubular members are injection molded, of an aramid fiber composite material.

SB 17 > 59. A method for assembling a crank set within a bracket shell of a bicycle, comprising:

- a. threading outer cups of a bearing set into each of two ends of the bracket shell;
- b. inserting inner cups of the bearing sets onto each of a crank axle portion of two crank set members;
- c. inserting the crank axle portion of one of the two crank set members into each end of the bracket shell within the outer cups and retaining rings of each bearing set;
- d. interlocking the crank axle portions of the two crank set members;
- e. preloading the two bearing sets; and
- f. securing the outer cups to the bracket shell.

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60. The method of claim 59, wherein the two crank axle portions of the crank set members are interlocked by fitting a tenon member on an end of one crank axle portion into a mortise member on an end of another crank axle portion.

61. The method of claim 60, wherein the tenon member is fitted into the mortise member by an attachment bolt, the attachment bolt passing through a clearance hole in an end of one crank axle portion and threadably attaching to an attachment hole in an end of another crank axle portion.

SC 1 > 62. A bicycle crank set comprising:

- a. a pair of hollow L-shaped tubular members, each being of unitary construction and having one-piece continuous walls, each of said members comprising:

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- i. a first leg having respective first and second closed ends;
- ii. a second leg joining said first leg at a position between the axial midpoint of said first leg and a second end of said first leg, said second leg having an open end remote from position of juncture with said first leg;
- iii. interiors of said legs of respective tubular members being in open communication with each other;
- iv. first closed ends of said L-shaped tubular members being rounded;
- v. a second one of said tubular members having a spider integrally formed therein as a part of said one-piece continuous wall, proximate said second closed end, coaxially with said second leg of said second tubular member, said spider being adapted for driving engagement with a conventional bicycle drive chain;
- vi. said members being adapted for coaxial interfitting joining at convoluted open ends of respective second legs for unitary rotation about a common axis of said second legs; and
- b. releasable means for clampingly securing said second legs for said unitary rotation when said convoluted open ends are matingly engaged, comprising:
  - i. an outer sleeve surrounding said matingly engaged second

legs;

- ii. a radially expandable inner sleeve positioned within said matingly engaged second legs, including an axially tapered interior surface, adapted to expand outwardly against inner annular surface of said second legs and urging said second legs outwardly into tight fitting contact with said outer sleeve;
- iii. a threaded stud coaxially located within said inner sleeve;
- iv. externally axially tapered bushing means threadedly engaging said stud and axially slidably contacting the interior of said inner sleeve upon rotational axial movement of said bushing along said stud;

wherein rotation of said stud results in bushing axial movement therealong moving said inner sleeve radially outwardly against annular interior surfaces of said second legs, urging said second legs outwardly into tight fitting contact with said outer sleeve and sandwiching said second legs therebetween for unitary rotation one with another.

63. (new) A bicycle crank set, comprising:

- a. a first tubular member having an exterior and interior surface;
- b. a second tubular member having an exterior and interior surface;
- c. a spider connected to the second tubular member; and
- d. a coupling comprising an outer sleeve and an inner sleeve, securing the first tubular member to the second tubular member, wherein said outer sleeve extends on said exterior of said first and

second tubular members and said inner sleeve extends substantially parallel to said outer sleeve on said interior surface of said first and second tubular members.

64. (new) The bicycle crank set of claim 63, wherein said inner sleeve is positioned within said first and second tubular members, includes an axially tapered interior surface, adapted to expand outwardly against said interior surface of said first and second tubular members and urging said tubular members outwardly tight fitting contact with said outer sleeve of said coupling.

65. (new) The bicycle crank set of claim 64, further comprising a threaded stud coaxially located within said inner sleeve.

66. (new) The bicycle crank set of claim 65, further comprising an externally axially tapered bushing means threadedly engaging said stud and axially slidably contacting the interior of said inner sleeve upon rotational axial movement of said bushing along said stud;  
wherein rotation of said stud results in bushing axial movement therealong moving said inner sleeve radially outwardly against annular interior surfaces of said interior surface of said first and second tubular members, urging said interior surface of said first and second tubular members outwardly into tight fitting contact with said outer sleeve and sandwiching said interior surface of said first and second tubular members therebetween for unitary rotation one with another.

67. (new) A bicycle crank set, comprising:

- a. a first tubular member;
- b. a second tubular member;

- c. a spider connected to the second tubular member; and
- d. a coupling securing the first tubular member to the second tubular member.

68. (new) The crank set of claim 67, wherein the coupling includes.

- a. a mortise member; and
- b. a tenon member, wherein the tenon member fits into the mortise member to secure the first tubular member to the second tubular member.

69. (new) The crank set of claim 68, wherein the coupling further includes an attachment bolt, the attachment bolt passing through a clearance hole in the tenon member and threadably attaching to an attachment hole in the mortise member, whereby threading the attachment bolt into the attachment hole in the mortise member securely interlocks the tenon member into the mortise member.

70. (new) The crank set of claim 68, wherein the coupling further includes an attachment bolt, the attachment bolt passing through a clearing hole in the mortise member and threadably attaching to an attachment hole in the tenon member, whereby threading the attachment bolt into the attachment hole in the tenon member securely interlocks the mortise member into the tenon member.

71. (new) The crank set of claim 68, wherein the mortise member and the tenon member are non-tapered.

72. (new) The crank set of claim 68, wherein the mortise member and the tenon member align to place the crank arms in 180° relation to one another.

73. (new) The crank set of claim 69, wherein the clearance hole is threaded and has a diameter greater than the diameter of the attachment hole, the coupling being separated by threading a separation bolt into the clearance hole and rotating the separation bolt until an end of the separation bolt forces the tenon member apart and away from the mortise member.

74. (new) The crank set of claim 70, wherein the clearance hole is threaded and has a diameter greater than the diameter of the attachment hole, the coupling being separated by threading a separation bolt into the clearance hole and rotating the separation bolt until and end of the separation bolt forces the mortise member apart and away from the tenon member.

75. (new) The crank set of claim 68, wherein the coupling is made of a boron composites.

76. (new) The crank set of claim 68, wherein the coupling is made of steel.

77. (new) The crank set of claim 68, further comprising two bearing sets, wherein the coupling is located precisely midway between the two bearing sets.

78. (new) The crank set of claim 73, wherein the diameter of the clearance hole is 10 mm, the diameter of the attachment hole is 8mm, the diameter of the attachment bolt is 8mm and diameter of the separation bolt is 10mm.

79. (new) The crank set of claim 74, wherein the diameter of the clearance hole is 10 mm, the diameter of the attachment hole is 8mm, the diameter of the attachment bolt is 8mm and the diameter of the separation bolt is 10mm.

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